

## National Institutes of Health 101

An introduction to the NIH and eRA enterprise that supports its public health mission.

10/12/2004

# Agenda

- Overview of NIH and eRA
- eRA systems
  - Commons
  - IMPACII
  - iEdison
- eRA Architecture
- FY 2004 Priorities
- Q & A

## National Institutes of Health

- The National Institutes of Health is the steward of medical and behavioral research for the Nation. It is an Agency under the U.S. Department of Health and Human Services
- The NIH comprises the Office of the Director and 27 Institutes and Centers.

#### National Institutes of Health



Much of the biomedical research in the United States is supported by the Federal Government, and primarily by the National Institutes of Health (NIH)



# Grants & Cooperative Agreements

- Assistance
- Patron/Partner
- Stimulate & Support Research
- Public Purpose
- Mostly Investigator Initiated
- Funded by Priority Score Order
- 80% of the NIH budget \$

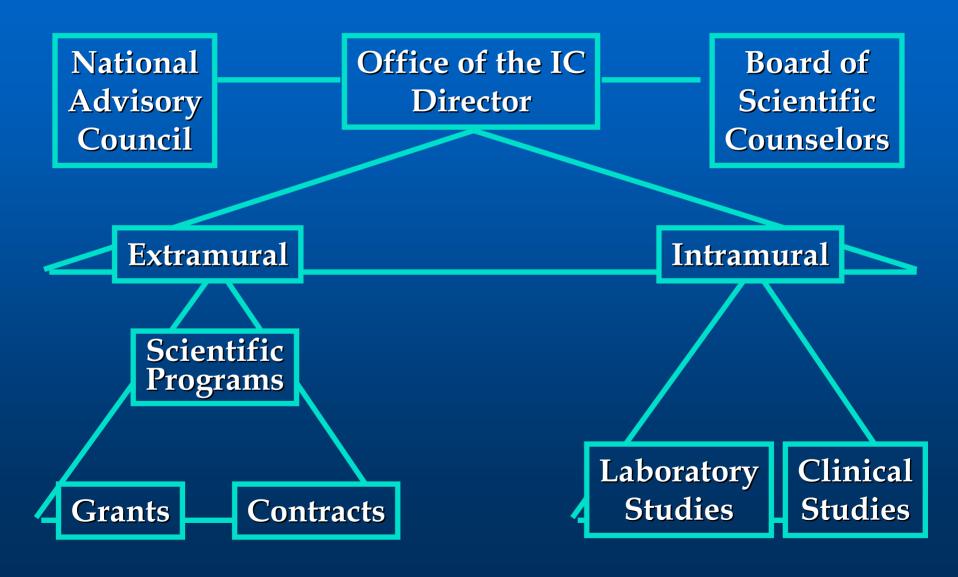
#### Contracts

- Purchaser
- Acquire Goods and Services
- Direct Benefit/Use by the Government
- Mostly Government Initiated
- Best Buy Negotiated
- 10 % of the NIH budget \$

# National Institutes of Health



# A Typical Institute/Center



## Center for Scientific Review (CSR)

#### Focal Point for Initial Review at NIH



- Central receipt point for PHS applications
- Referral to Institutes and to IRGs and Study Sections
- Review of most research and research training applications for scientific merit

# **Applications Submitted to NIH**



#### **Research Grant**

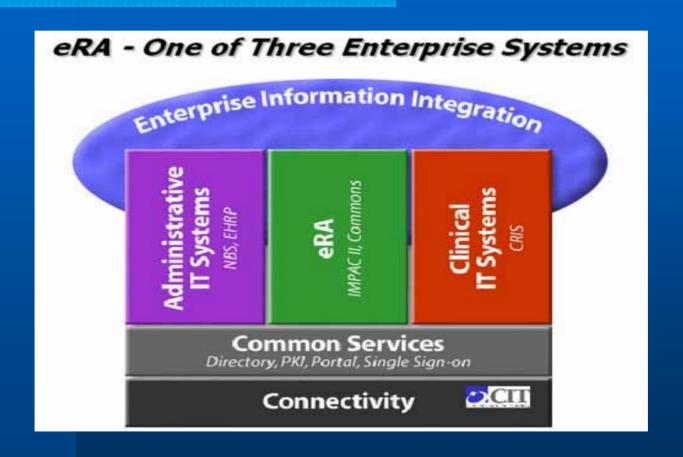
National Institutes of Health **School or Other** Research **Center for Scientific Review** Grant **Research Center Application** Assigns to IRG/Study Section & IC Study Section Initiates **Submits Application** Research **Evaluates for Scientific Merit** Idea Institute **Evaluates for Program Relevance Advisory Councils and Boards** Allocates Funds Conducts **Recommends Action** Research **Institute Director** Takes final action for NIH Director

# Receipt Dates \* \*\*

#### Depend on the Type of Application

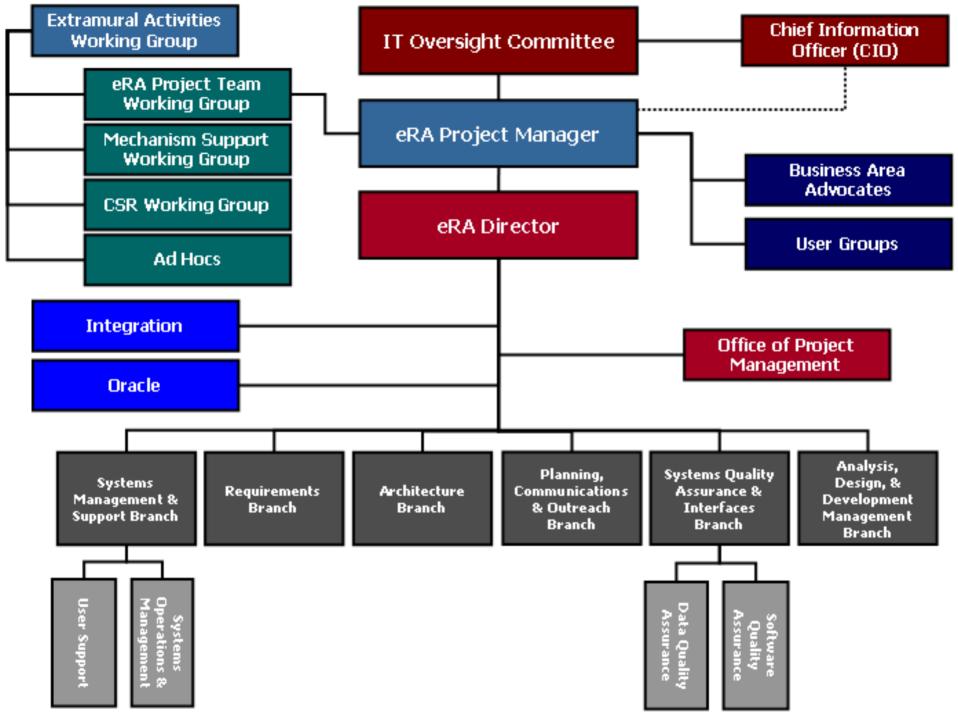
- Jan, May, Sept 10: Institutional Training Grant
- Jan, May, Sept 25: Academic Research Enhancement Award
- Mar, Jul, Nov 1: Revised, Competing Continuations, and Supplements
- April, Aug, Dec 1: Small Business Technology Transfer
- April, Aug, Dec 5: Individual NRSA
- April, Aug, Dec 1: Small Business Innovation Research
- May, Sept, Jan 1: AIDS
  - \* RFA and RFP dates defined in the solicitations
  - \*\* ALWAYS check with the Institute to verify

# NIH Enterprise Systems



# Electronic Research Administration (eRA)

- about \$20.5 billion in fiscal year 2003
- grant awards to some 50,000 investigators worldwide
- Receives more than 46,000
   competing (1 & 2) grant applications
- 3,160 meetings to review those applications.



# eRA Project Goals

- Implement user-driven, highly reliable, secure systems that provide a complete set of user-friendly tools that help ensure high data quality and integrity of the grant process.
- Provide a state-of-the-art architecture that allows the systems to be responsive to changes in business process, policies, and technology.
- Reach out to the community to ensure they are informed, trained, listened to and responded to.
- Capitalize on extension systems to save costs for the Institutes and Centers (ICs) and build them within the enterprise system as appropriate.
- Provide a good return on investment.

## eRA Project Drivers

- Public Law 106, 107
  - improve the effectiveness and performance of Federal grant programs,
  - simplify grant application and reporting requirements,
- The Government Paperwork Elimination Act requires that, when practicable, Federal agencies use electronic forms, filing and signatures to conduct official business by 2003
- Users
  - Actively engaged in priority setting
  - Work with Business Advocates and Analysts to collect requirements

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## What is eRA?

 The electronic research administration (eRA) is NIH's infrastructure for conducting interactive electronic transactions for the receipt, review, monitoring, and administration of NIH grant awards to biomedical investigators worldwide

FOR MORE INFO...

Era.nih.gov Impacii.nih.gov

## NIH eRA Objective: Full Electronic Grants Administration

**Applicant/Grantee Interface – NIH Commons** 

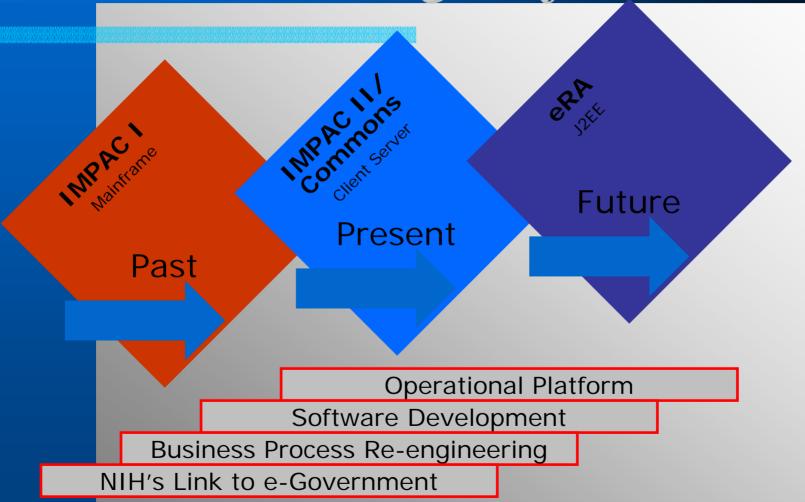
225,000,000 Pieces of Paper

**NIH Grants Database Interface – IMPAC II** 

1.6 million transactions daily

**NIH Institutes and Centers** 

eRA is an Evolving Project



# eRA Requirements Management

- eRA project management is driven by user input
- Software development driven by user requirements
- More than 600 volunteer advocates represent interests of ICs and grant processing functional areas

## eRA – (External & Internal Systems)

#### Commons –

Commons enables communication with NIH's partners in the research community

#### IMPACII –

NIH staff uses IMPAC II

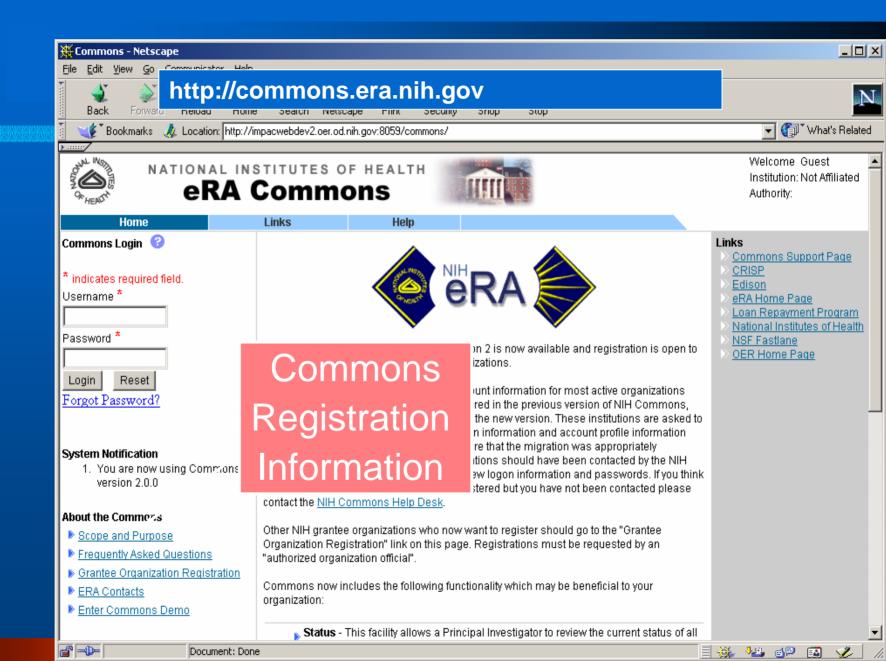
#### iEdison –

 U.S. Government's Internet center for reporting inventions developed with government funding.

## eRA Commons

- Status
- Electronic Streamlined Non-Competing Award Process (eSNAP)
- Financial Status Report (FSR)
- Internet Assisted Review (IAR)
- X-Train
- CRISP
- Competitive Grant Applications (CGAP)
- Commons Profile Administration

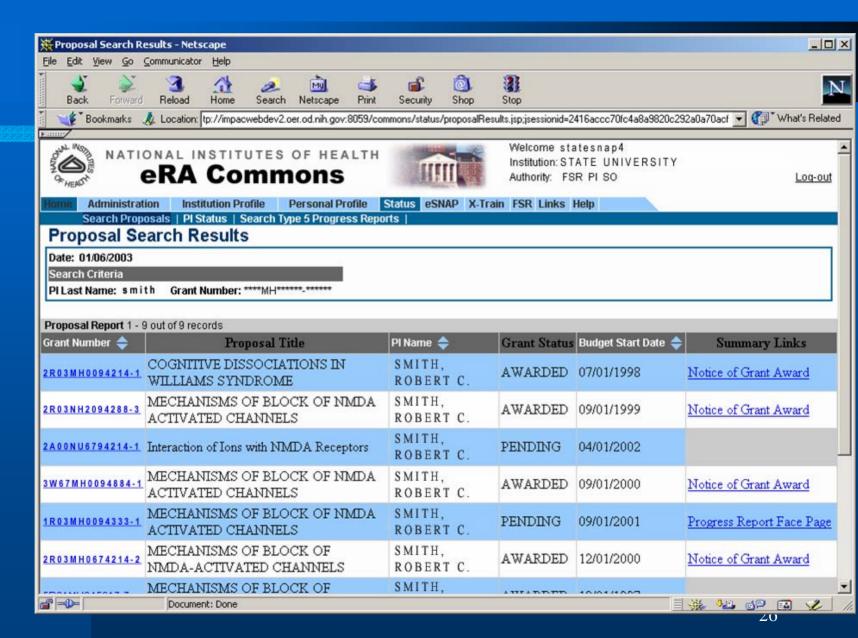
#### Commons Home Page



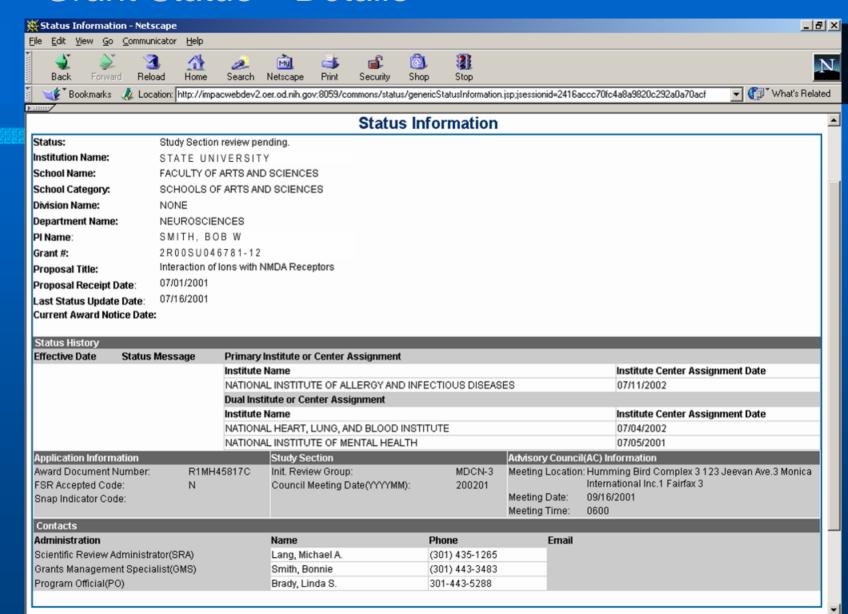
# Application "Status"

- General Status information
  - Access Level dependent upon Role (PI sees Summary Statement, Priority Score, Percentile)
  - Dates
- Link to NGA, Summary Statement, Abstract
  - (Grant Folder coming in March)
- NIH contact information
- Link to Study Section information
- Availability of pre-populated forms for renewals

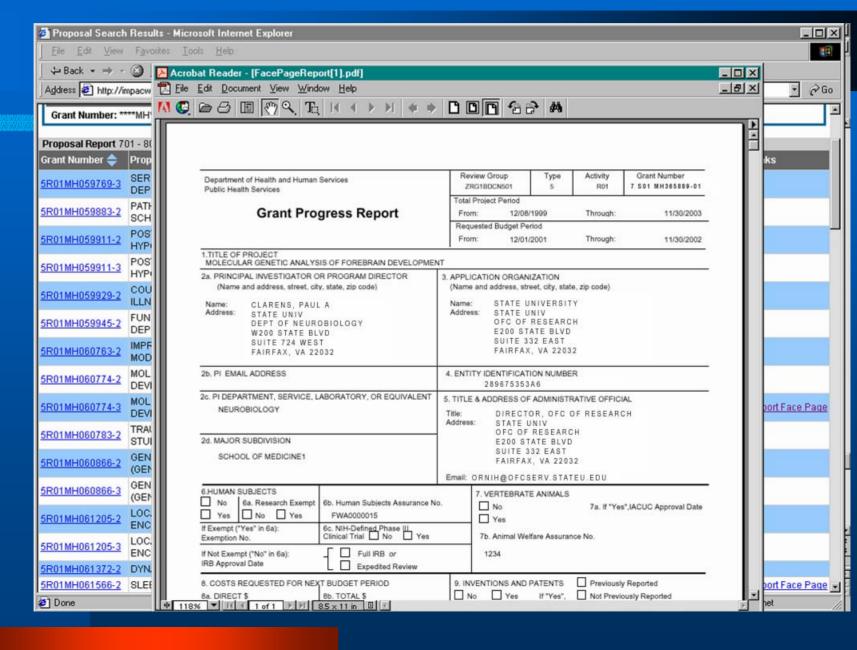
#### **Grant Status**



#### Grant Status - Details



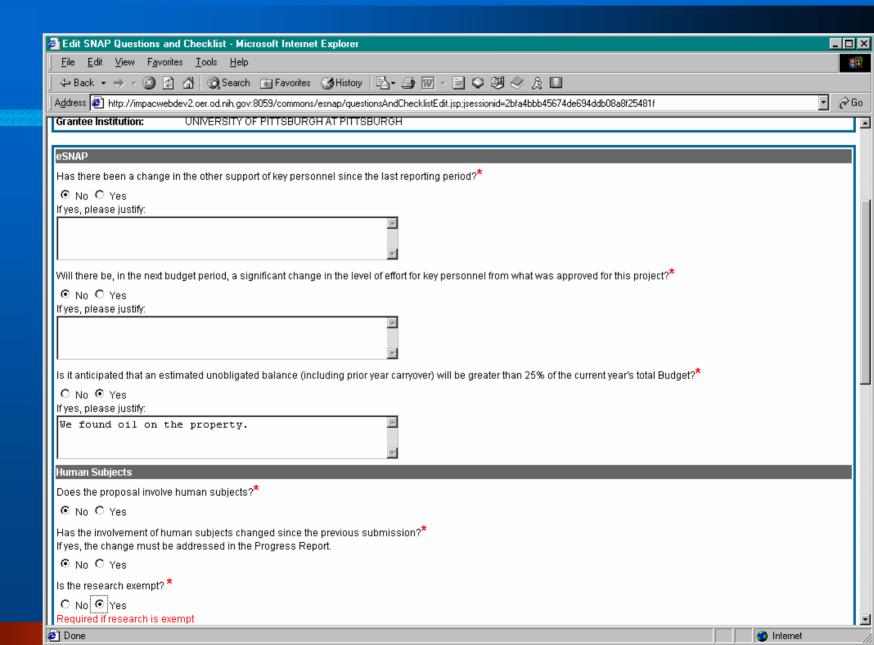
#### Progress Report Face Page



## eSNAP Functionality

- Available for Most "R" Mechanisms
- Submission 45 days prior to anniversary
- Submission of Research Accomplishments
- Customizable Workflow
  - PI May be Delegated Submit Authority by SO
- Presentation of Personnel Data Page
- Major Usability Upgrade in March
- Submitted eSNAPs appear in Grant Folder

#### eSNAP - Snap Questions and Checklist



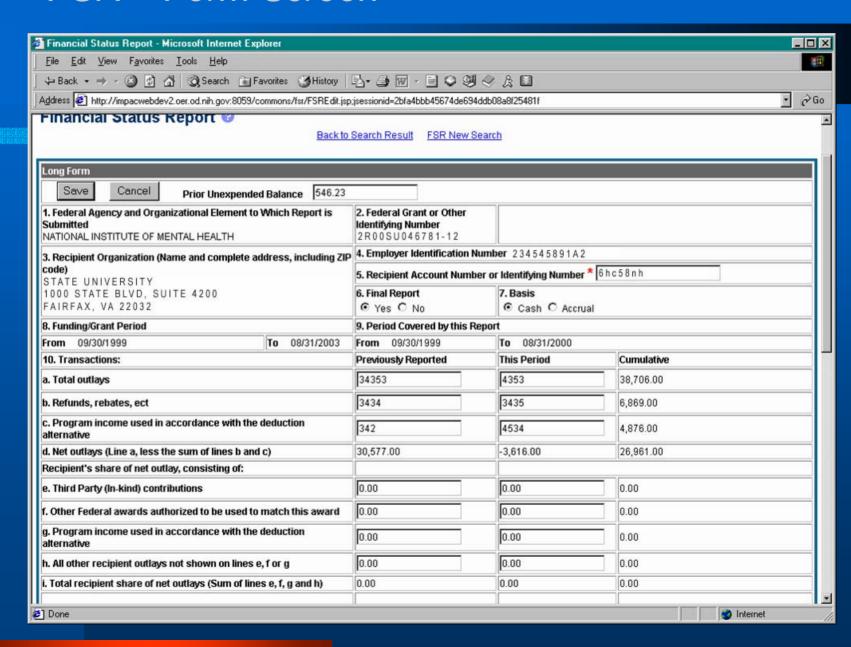
## eSNAP Deployment

- Fall 2002 Low Profile Pilot (50 eSNAPs)
- Spring 2003 –Pilot (500 eSNAPs)
  - Usability Much more seamless
  - Demo Facility Allows Institutions to Train/Practice
  - Allows us to work Internal NIH Issues
- Fall 2003
  - eSNAP Universally Available
- Today Available in eRA

## Financial Status Report (FSR)

- Replaces Mainframe TSO system
- Search for Grants based upon Due Date
- Submit new/revised FSR
- View FSR status (due, late, received etc.)
- Submitted FSRs Appear in "Status"
- Integrates with NIH Accounting System

#### FSR - Form Screen



#### Internet Assisted Review

- Web-based system to manage the process of electronic submission of critiques by reviewers.
- IAR expedites the scientific review of grant applications by standardizing the current process of critique and initial priority score submissions by reviewers via the Internet.
- IAR enables reviewers to submit critiques and view each other's reviews before the actual meeting.
- Review meetings contain more informed discussions because reviewers are able to read the evaluations entered by others prior to the review meeting (except where there is a conflict of interest).

#### X-Train

- The Commons Electronic Trainee Activities interface (X-Train) provides the means for NIHsupported Post Doctoral students and trainees to provide NIH with the information needed to administer their National Research Service Award (NRSA) training grants
- Required information includes:
  - Address
  - Educational background
  - NIH monetary support
  - Training appointment period

## CRISP

- CRISP is a searchable database of federally funded biomedical research projects conducted at universities, hospitals, and other research institutions
- 30,000 queries per week
- Users, including the public, query the CRISP interface to search for scientific concepts, emerging trends and techniques, or to identify specific projects and/or investigators

# CGAP Competing Grant Application Process

- Business to Government
- Coordination with Government wide
   eGRANTS initiative
- •In pilot mode
- •Successful electronic grant submissions

#### Commons Profile Administration

- Account Administration (One Profile Across NIH)
  - Foundation of all Applications
  - Foundation of CGAP/eGrants
- Access to all eRA modules
  - Internet Assisted Review
  - Status
  - Financial Status Report
  - eSNAP

# Creating an Account

- All Roles other than PI is Immediate
- For PI/Reviewer It may take 3-4 days. Why?
  - NIH may have Multiple Profiles
  - Semi-Automated Process to Consolidate Multiple Profiles
  - Clean-up Data
    - Personal Information
    - Address
    - Degrees
  - Be Patient This process will get Better!

# Institution Registration

- Process to Register Institution:
  - Signing Official Fills out a Web Based Form
  - Submits to NIH
  - Prints Form, Signs and Faxes (for signature)
  - NIH Validates and Initial Accounts are Sent
- Once Institution is Registered, Signing Official:
  - Registers rest of Institution Staff (Affiliate IAR Users)
    - PI Principal Investigator
    - SO Signing Official
    - AO Administrative Official
    - AA Administrative Assistant (Maintain Accounts)
    - ASST Assistant (No access but may be delegated rights)
    - FSR Access to FSR
  - Maintains Institution Profile (IPF)

# Signing Official (SO)

- Create/Maintain Accounts
- View All Applications in Institution Except:
  - Summary Statements
  - Scores
  - Specific Award Status
- Submit eSNAP to NIH
  - It is possible to Delegate this Function

# Administrative Official (AO)

- Same Rights of the SO
  - Create/Maintain Accounts
  - View All Applications
- Except:
  - Can not Submit eSNAPs
  - Can not Create Signing Officials
  - Can only Maintain Accounts they have Created

# Principal Investigator (PI)

- Full Access to Own Applications
- Initiate an eSNAP
- Route eSNAP to Next Reviewer

# Assistant (ASST)

- ASST Role has Virtually No Access
- Intended for PI Delegation

# Accounts Administrator (AA)

- Create/Maintain Accounts
- Today AA is a Role and is Restricted

#### Other Roles

- FSR Access to FSR Application
- IAR Access to IAR for Pre Meeting Critique Submission
- CGAP For Pilot e- app submissions

# Single Point of Ownership (SPO)

- Guiding Principle of SPO is to avoid conflicts between between NIH and Extramural Users
- Personal Profile
  - Name
  - Date of Birth
  - Addresses
  - Degrees
  - Publications
- Institution Profile (IPF)
  - Basic Institution Administration (DUNS, HSA#, AWA#)
  - Assurances and Certifications
  - Addresses
- Human Subject Progress Report Submission (July)

#### IMPAC II Modules

- Committee Management (CM)
- Grants Management (GM)
- Grant Closeout (GCS)
- IC Operations (ICO)
- Program Module
- Population Tracking (POP)
- Receipt, Referral & Assignment (R&R)
- Scientific Peer Review (REV)
- Special Initiatives Tracking System (SITS)
- Training Activities (TA)
- Reporting Tools & Databases

# Committee Management (CM)

- Used to create new committees and track details of existing and standing committees
- Facilitates nomination and appointment process for appointee/members
- Prepares committee nomination slate packages for approval
- Sets up review meetings, meeting rosters, and meeting agenda details
- Generates the Federal Register Notice

# Grants Management (GM)

- Supports NIH Grants Management Offices
- Functionality Includes:
  - Budget data entry and spreadsheet importation
  - Principal Investigator (PI) data entry and update
  - Rule-based edit checks
  - Generation and storage of Notice of Grant Awards (NGAs)

# Grants Closeout System (GCS)

- 1<sup>st</sup> application developed using J2EE technology
- Released for pilot testing May 2002
- System provides
  - Identification of grants eligible for closeout
  - Generation of email to Business Official and Principal Investigator (PI) requesting missing closeout items
  - Ability to view Pl's involvement in other grants
  - Tracking and reporting on items required for closeout

# IC Operations (ICO)

- Contains functionality used by multiple business areas throughout NIH
- Assigns Program Class Code (PCC) and Program Official (PO) to grant applications
- Used by PO to manage grant portfolio
- Updates "intent-to-pay"
- e-SNAP view and sign off capability currently under development

# Program Module

- Getting information quickly on a grant's status when a P.I. calls, using the SEARCH feature
- Quickly accessing your assigned grants and related documents, using MY PORTFOLIO
- Monitoring your portfolio workload at each stage of the grant cycle, including Pre-Submission, Pending SRG, Pre-Council, Post Council, Pending Type 5s, and Post Award.
- Providing Program Approval for pre-award and Progress Reports requirements while in MY PORTFOLIO
- Accessing reports and exporting lists to Excel from each portfolio
- Linkage to other electronic Research Administration (eRA) modules, e.g., Commons, ECB, QVR, QuickView, etc.

# Population Tracking Module (POP)

- The IMPAC II Population Tracking Module records NIH tracking data involving the target and yearly cumulative enrollment of women and minorities participating in clinical research
- Full deployment will allow all ICs to discontinue use of extension systems and use this comprehensive module instead
- Version 1 released May 2002

# Receipt, Referral & Assignment (R&R)

- Used for receipt, processing and assignment of competing grant applications for all NIH Institutes and Centers and selected components of HHS
- Used by Center for Scientific Review (CSR) only

### Scientific Peer Review (REV)

- Grant scanning
- Electronic preparation and distribution of Summary Statements
- Analysis of prospective reviewers
- Assignment of reviewers to specific review meetings
- Grantee Institution conflict-of-interest checking
- Internet-Assisted Review Module currently in development

# Special Initiatives Tracking System (SITS)

- Used to create and track special supplements for minority, disability, and re-entry (women) supportees
- Provides capability for supplement to be awarded and rolled-in to parent grant

# Training Activities (TA)

- Supports NIH's National Research Service Award (NRSA) business operations for processing trainee appointments, terminations and payback obligations
- Serves as repository for records of both paper and electronic documents sent to NIH by PIs
- Provides interface to OFM for financial payback accounting

#### eRA Shared Modules

- Grants Update Module (GUM)
- Grant Folder
- ICSTORe
- Persons Module
- User Administration

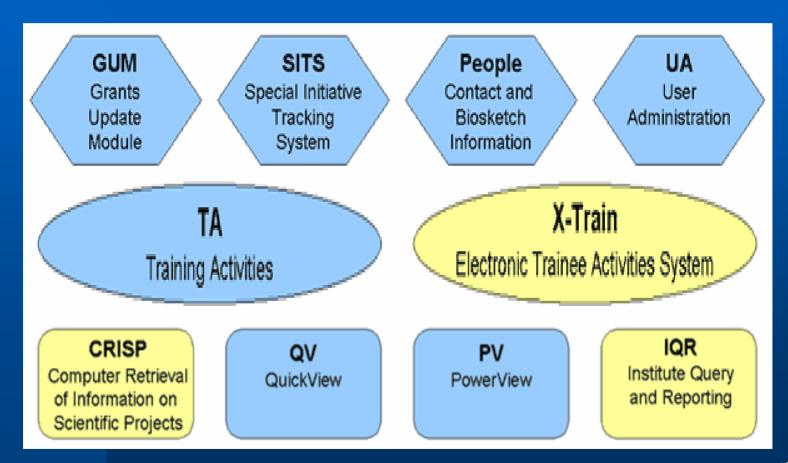
## Reporting Tools & Databases

- IC Search, Track, Order, and Reporting of Documents (ICSTORe)
- PowerView (PV)
- QuickView (QV)
- IMPAC II Reporting DataBase (IRDB)
  - Provides source data for all IC extension systems

# eRA Key IMPACII Modules

- Committee Management (CM)
- Grants Management (GM)
- Program (PGM)
- Receipt and Referral (RR)
- Review (REV)
- Training Activities (TA)

### **IMPACII** Modules and Query Tools



#### Grants Process

Commons Administrative Modules

CGAP – Competitive Grant Application

RR - Receipt, Referral, Assignment

**CM** – Committee Management

**REV** - Review

ECB - Electronic Council Book

**GM** – Grants Management

Status - Commons Status

ICO - Institute and Center Operations

e-SNAP – Streamlined Non-Competing Award Process

IEdison - Invention Reporting

#### eRA Benefits to Grantee & NIH Staff

	Grantee Users	NIH staff
Improved Resource Allocation	Reduction in paper & handling costs	<ul> <li>Reduction in duplication disposal costs</li> <li>Fewer staff required for processing and oversight</li> </ul>
Improved Work Efficiency	<ul><li>monitoring of status information</li><li>Improved information retrieval</li></ul>	<ul><li>Reduction in number of telephone inquiries</li><li>Improved information retrieval</li></ul>
Improved Quality of Data	<ul> <li>Most accurate         grantee Representation         – Prof./Inst. profiles</li> <li>Data validation         – User interface &amp; system</li> </ul>	Minimize duplicate     versions of people     Minimize grantee     contact     to verify information
Improved Response Time	<ul> <li>Rapid, confidential</li> <li>viewing of documents</li> <li>– Sum. Stmt./Score</li> </ul>	<ul> <li>Purposeful notification of cognizant staff</li> </ul>

# Interagency Edison (iEdison)

Interagency Edison (iEdison)
 provides Federal grantee/contractor
 organizations and participating
 federal agencies with the technology
 to electronically manage extramural
 invention portfolios in compliance
 with federal reporting requirements

# iEdison – Participating Agencies

- National Institutes of Health (NIH)
- United States Department of Agriculture - Cooperative State Research, Education, and Extension Service (USDA/CSREES)
- U.S. National Oceanic & Atmospheric Administration (NOAA)
- U.S. Food and Drug Administration (FDA)
- U.S. Agency for International Development (USAID)
- Centers for Disease Control and Prevention (CDC)

- Agency for Toxic Substances and Disease Registry (ASTDR)
- National Science Foundation (NSF)
- Medical Research and Material Command (ARMY/MRMC)
- Air Force Office of Scientific Research (USAF/AFOSR)
- Agency for Health Care Research and Quality (AHRQ)
- Environmental Protection Agency (EPA)
- Office of Naval Research (NAVY/ONR)
- Forest Service (USDA/FS)

# eRA Architectural Considerations

- Client Server Applications
- J2EE Applications
- Middle Tier
- IMPPRD
- IRDBPRD
- Windows 2000
- Sun
- Compaq

## eRA System Hardware

#### Production:

- Production Cluster
- SAN, Load Balancing
- 6 middle-tier (application) servers
- 3 terabytes of storage
- Development (testing, training, staging):
  - 3 back-end servers
  - 3 middle-tier servers
  - 3 terabytes of storage
- eRA data center comprises more than 30 machines hosted at CIT
- Linked to user community via NIH backbone

# Challenges: Additional Demands

- J2EE migration not complete
- OPDIV Integration
- Changes in Congressional mandates
- IC Coding System new, standardized data structure for ICs
- New business intelligence tools, concept mapping, knowledge management, OLAP
- Flexible architecture

#### eRA FY 2004 Priorities

- Expansion and enhancement of Commons
- End to end Electronic applications
- NIH Roadmap, MEO, Grants.gov, knowledge management

# Questions/Comments/Thoughts











